



PCT

## RAW SEQUENCE LISTING

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:21

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 4 Hiroyuki, Mizuguchi  
 5 Takao, Hayakawa  
 6 Fuminori, Sakurai  
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 C--> 12 <141> CURRENT FILING DATE: 2004-12-02  
 12 <150> PRIOR APPLICATION NUMBER: JP 2002-164015  
 13 <151> PRIOR FILING DATE: 2002-06-05  
 15 <160> NUMBER OF SEQ ID NOS: 1  
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Does Not Comply  
 Corrected Diskette Needed  
 (p5.13-14)

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223 gcgctgcaga gccagccgct cggcattaac tctcggacg attggacca ggccatgcaa 11940
224 cgtatcatgg cgttgacgac tcgcaacccc gaagccttta gacagcaacc ccaggccaac 12000
225 cgtctatcgg ccatcatgga agctgtagtg ccttcccgat ctaatcccac tcatgagaag 12060
226 gtcctggcca tcgtgaacgc gttgggtggag aacaaagcta ttcgtccaga tgaggccgga 12120
227 ctggtatata acgctctctt agaacgcgtg gctcgctaca acagtagcaa tgtgcaaacc 12180
228 aatttggaac gtatgataac agatgtacgc gaagccgtgt ctcagcgcca aaggttccag 12240
229 cgtgatgcca acctgggttc gctgggtggc ttaaattgct tcttgagtac tcagcctgct 12300
230 aatgtgccgc gtggtcaaca ggattatact aactttttaa gtgctttgag actgatggta 12360
231 tcagaagtac ctcagagcga agtgtatcag tccggtcctg attacttctt tcagactagc 12420
232 agacagggct tgcagacggt aaatctgagc caagctttta aaaaccttaa aggtttgtgg 12480
233 ggagtgcacg ccccggtagg agaaagagca accgtgtcta gcttggttaac tccgaactcc 12540
234 cgctgttat tactgttggg agctcctttc accgacagcg gtagcatcga ccgtaattcc 12600
235 tatttggtt acctactaaa cctgtatcgc gaagccatag ggcaaagtca ggtggacgag 12660
236 cagacctatc aagaaattac ccaagtcagt cgcgctttgg gacaggaaga cactggcagt 12720
237 ttggaagcca ctctgaactt cttgcttacc aatcggtctc aaaagatccc tctcaatat 12780
238 gctcttactg cggaggagga gaggatcctt agatatgtgc agcagagcgt gggattgttt 12840
239 ctgatgcaag agggggcaac tccgactgca gcaactggaca tgacagcgcg aaatatggag 12900
240 cccagcatgt atgccagtaa cccgaccttc attaaacaac tgctggacta cttgcacaga 12960
241 gctgccgcta tgaactctga ttatttcacc aatgccatct taaacccgca ctggctgccc 13020
242 ccacctggtt tctacacggg cgaatatgac atgcccagac ctaatgacgg atttctgtgg 13080

```

## RAW SEQUENCE LISTING

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:21

Input Set : A:\PH-1823PCT-US(sequence).txt

Output Set: N:\CRF4\12102004\J516504.raw

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243 gacgacgtgg acagcgatgt tttttcacct ctttctgata atcgcacgtg gaaaaaggaa 13140
244 ggcggtgata gaatgcattc ttctgcatcg ctgtccgggg tcatgggtgc taccgcggct 13200
245 gagcccgagt ctgcaagtcc ttttcctagt ctaccctttt ctctacacag tgtacgtagc 13260
246 agcgaagtgg gtagaataag tgcgccgagt ttaatgggcg aagaggagta cctaaacgat 13320
247 tccttgctca gaccggcaag agaaaaaaat ttcccaaaca atggaataga aagtttggtg 13380
248 gataaaatga gtatagggaa gacttatgct caggatcaca gagacgagcc tgggatcatg 13440
249 gggactacaa gtatagcgag ccgtagacgc cagcgccatg acagacagag gggctctgtg 13500
250 tgggacgatg aggattcggc cgatgatagc agcgtgttgg acttgggtgg gagaggaagg 13560
251 ggcaaccctg ttgctcattt gcgccctcgc ttgggtggta tgttgtgaaa aaaaataaaa 13620
252 aagaaaaact caccaaggcc atggcgacga gcgtacgttc gttcttcttt attatctgtg 13680
253 tctagtataa tgaggcgagt cgtgctaggc ggagcggtgg tgtatccgga gggctcctct 13740
254 ccttcgtacg agagcggtgat gcagcagcag caggcgacgg cggtgatgca atccccactg 13800
255 gaggtccctt ttgtgcctcc gcgatacctg gcacctacgg agggcagaaa cagcattcgt 13860
256 tactcggaac tggcacctca gtacgatacc accaggttgt atctggtgga caacaagtcg 13920
257 gcggacattg cttctctgaa ctatcagaat gaccacagca acttcttgac caggttggtg 13980
258 cagaacaatg actttacccc tacggaagcc agcaccaga ccattaactt tgatgaacga 14040
259 tcgcggtggg gcggtcagct aaagaccatc atgcatacta acatgccaaa cgtgaacgag 14100
260 tatatgttta gtaacaagtt caaagcgcgt gtgatggtgt ccagaaaacc tccgcagcgt 14160
261 gtgcagttg gggatactta tgatcacaaag caggatattt tggaaatga gtggttcgag 14220
262 tttactttgc cagaaggcaa cttttcagtt actatgacta ttgatttgat gaacaatgcc 14280
263 atcatagata attacttgaa agtgggtaga cagaatggag tgcttgaaag tgacattggt 14340
264 gttaagtctg acaccaggaa cttcaagctg ggatgggatc ccgaaaccaa gttgatcatg 14400
265 cctggagtgt atacgtatga agccttccat cctgacattg tcttactgcc tggctgcgga 14460
266 gtggatttta ccgagagtcg tttgagcaac cttcttggtg tcagaaaaaa acagccattt 14520
267 caagagggtt ttaagatttt gtatgaagat ttagaagggtg gtaatatcc ggccctcttg 14580
268 gatgtatag cctatgagaa cagtaagaaa gaacaaaaag ccaaaataga agctgctaca 14640
269 gctgctgcag aagctaaggc aaacatagtt gccagcgact ctacaagggt tgctaacgct 14700
270 ggagagggtc gaggagacaa ttttgcgcca acacctgttc cgactgcaga atcattattg 14760
271 gccgatgtgt ctgaaggaaac ggacgtgaaa ctactattc aacctgtaga aaaagatagt 14820
272 aagaatagaa gctataatgt gttggaagac aaaatcaaca cagcctatcg cagttggtat 14880
273 ctttcgtaca attatggcga tcccgaaaaa ggagtgcgtt cctggacatt gctcaccacc 14940
274 tcagatgtca cctgcggagc agagcaggtt tactggctgc tccagacat gatgaaggat 15000
275 cctgtcactt tccgctccac tagacaagtc agtaactacc ctgtggtggg tgcagagctt 15060
276 atgcccgctt tctcaaagag cttctacaac gaacaagctg tgtactcca gcagctccgc 15120
277 cagtccacct cgcttacgca cgtcttcaac cgctttcctg agaaccagat ttaatccgt 15180
278 ccgccggcgc ccaccattac caccgtcagt gaaaacgttc ctgctctcac agatcacggg 15240
279 accctgccgt tgcgcagcag tatccgggga gtccaacgtg tgaccgttac tgacgccaga 15300
280 cgccgcacct gtccctacgt gtacaaggca ctgggcatag tcgcaccgcg cgtcctttca 15360
281 agccgcactt tctaaaaaaa aaaaatgtcc attcttatct cgccagtaa taacaccggt 15420
282 tggggtctgc gcgctccaag caagatgtac ggaggcgac gcaaacgttc taccacacat 15480
283 ccggtgcgtg ttgcgggaca ttttcgcgct ccatggggtg ccctcaaggg ccgcactcgc 15540
284 gttcgaacca ccgtcgatga tgaatcgat cagggtggtg ccgacgcccg taattatact 15600
285 cctactgcgc ctacatctac tgtggatgca gttattgaca gtgtagtggc tgacgctcgc 15660
286 aactatgctc gacgtaagag ccggcgaggc cgcattgcca gacgccaccg agctaccact 15720
287 gccatgcgag ccgcaagagc tctgctacga agagctagac gcgtggggcg aagagccatg 15780
288 cttagggcgg ccagacgtgc agcttcgggc gccagcgccg gcaggtcccg caggcaagca 15840
289 gccgctgtcg cagcggcgac tattgccgac atggcccaat cgcgagagg caatgtatac 15900
290 tgggtgcgtg acgctgccac cggccaacgt gtaccctgct gcacccgtcc ccctcgcact 15960
291 tagaagatac tgagcagctc ccgatgttgt gtcccagcgg cgaggatgtc caagcgcaaa 16020

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## RAW SEQUENCE LISTING

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:21

Input Set : A:\PH-1823PCT-US(sequence).txt

Output Set: N:\CRF4\12102004\J516504.raw

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292 tacaaggaag aaatgctgca ggttatcgca cctgaagtct acggccaacc gttgaaggat 16080
293 gaaaaaaaaac cccgcaaaat caagcgggtt aaaaaggaca aaaaagaaga ggaagatggc 16140
294 gatgatgggc tggcggagtt tgtgcgcgag tttgccccac ggcgacgcgt gcaatggcgt 16200
295 gggcgcaaaag ttgcacatgt gttgagacct ggaacttcgg tggctctttac acccggcgag 16260
296 cgttcaagcg ctacttttaa gcgttcctat gatgaggtgt acggggatga tgatattctt 16320
297 gagcaggcgg ctgaccgatt aggcgagttt gcttatggca agcgtagtag aataacttcc 16380
298 aaggatgaga cagtgtcaat acccttggat catggaaatc ccaccctag tcttaaaccg 16440
299 gtcactttgc agcaagtgtt acccgtaact ccgcgaacag gtgttaaacy cgaagggtgaa 16500
300 gatttgtatc ccactatgca actgatggta cccaaacgcc agaagttgga ggacgttttg 16560
301 gagaaagtaa aagtggatcc agatattcaa cctgaggtta aagtgagacc cattaagcag 16620
302 gtacgcctg gtctgggggt acaaactgta gacattaaga tccactga aagtatggaa 16680
303 gtgcaaaactg aaccgcgaaa gcctactgcc acctccactg aagtgcaaac ggatccatgg 16740
304 atgcccacgc ctattacaac tgacgcgcgc ggtccactc gaagatcccg acgaaagtac 16800
305 ggtccagcaa gtctgttgat gcccaattat gttgtacacc catctattat tctactcct 16860
306 ggttaccgag gcactcgcta ctatcgcac cgaaacagta cctcccgccg tcgccgcaag 16920
307 acacctgcaa atcgcagtcg tcgccgtaga cgcacaagca aaccgactcc cggcgccctg 16980
308 gtgcggcaag tgtaccgcaa tggtagtgcg gaacctttga cactgcgcgc tgcgcgttac 17040
309 catccgagta tcactactta atcaatgttg ccgctgcctc cttgcagata tggccctcac 17100
310 ttgtcgcttc cgcgttccca tcaactggta ccgaggaaga aactcgcgcc gtagaagagg 17160
311 gatgttggga cgcggaatgc gacgctacag gcgacggcgt gctatccgca agcaattgcy 17220
312 ggggtggttt ttaccagcct taattccaat tatcgctgct gcaattggcg cgataccagg 17280
313 catagcttcc gtggcggttc aggcctcgca acgacattga cattggaaaa aaaacgtata 17340
314 aataaaaaaa aatacaatgg actctgacac tcttggtcct gtgactatgt tttcttagag 17400
315 atggaagaca tcaatttttc atccttggct ccgcgacacg gcacgaagcc gtacatgggc 17460
316 acctggagcg acatcggcac gagccaactg aacggggggcg ccttcaattg gagcagtatc 17520
317 tggagcgggc ttaaaaattt tggctcaacc ataaaaacat acgggaacaa agcttggaaac 17580
318 agcagtacag gacaggcgct tagaaataaa cttaaagacc agaacttcca acaaaaagta 17640
319 gtcgatggga tagcttccgg catcaatgga gtggtagatt tggctaacca ggctgtgcag 17700
320 aaaaagataa acagtcgttt ggacccgcgc ccagcaacccc caggtgaaat gcaagtggag 17760
321 gaagaaattc ctccgccaga aaaacgaggg gacaagcgct cgcgtcccga tttggaagag 17820
322 acgctgggtg cgcgcgtaga tgaaccgcct tcttatgagg aagcaacgaa gcttggaatg 17880
323 cccaccacta gaccgatagc cccaatggcc accggggtga tgaaaccttc tcagttgcat 17940
324 cgacccgtca ccttggattt gccccctccc cctgctgcta ctgctgtacc cgcttctaag 18000
325 cctgtcgctg ccccgaaacc agtcgcgcta gccaggtcac gtcccggggg cgctcctcgt 18060
326 ccaaatgcgc actggcaaaa tactctgaac agcatcgtag gtctaggcgt gcaaagtgtg 18120
327 aaacgccgct gctgctttta attaaatatg gagtagcgct taacttgcct atctgtgtat 18180
328 atgtgtcatt acacgccgct acagcagcag aggaaaaaag gaagaggtcg tgcgtcgacg 18240
329 ctgagttact ttcaagatgg ccaccccatc gatgctgcc caatgggcat acatgcacat 18300
330 cgccggacag gatgcttcgg agtacctgag tccgggtctg gtgcagttcg cccgcgccac 18360
331 agacacctac ttcaatctgg gaaataagtt tagaaatccc accgtagcgc cgaccacga 18420
332 tgtgaccacc gaccgtagcc agcggctcat gttgcgcttc gtgcccgttg accgggagga 18480
333 caatacatat tcttacaag tgccgtacac cctggccgtg ggcgacaaca gagtgtgga 18540
334 tatggccagc acgttctttg acattagggg cgtgttgagc agaggtccca gtttcaaacc 18600
335 ctattctggt acggcttaca actctctggc tctaaaggc gctccaaatg catctcaatg 18660
336 gattgcaaaa ggcgtaccaa ctgcagcagc cgcaggcaat ggtgaagaag aacatgaaac 18720
337 agaggagaaa actgctactt acacttttgc caatgctcct gtaaaagccg aggtcaaat 18780
338 taaaaaagag ggcttaccaa taggtttgga gatttcagct gaaaacgaat ctaaaccat 18840
339 ctatgcagat aaactttatc agccagaacc tcaagtggga gatgaaactt ggactgacct 18900
340 agacggaaaa accgaagagt atggaggcag ggctctaaag cctactacta acatgaaacc 18960

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## RAW SEQUENCE LISTING

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:21

Input Set : A:\PH-1823PCT-US(sequence).txt

Output Set: N:\CRF4\12102004\J516504.raw

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341 ctgttacggg tcctatgcga agcctactaa tttaaaagggt ggtcaggcaa aaccgaaaaa 19020
342 ctcggaaccg tcgagtga aaattgaata tgatattgac atggaatddd ttgataactc 19080
343 atcgcaaaga acaaacttca gtcctaaaat tgtcatgtat gcagaaaatg taggtttgga 19140
344 aacgccagac actcatgtag tgtacaaacc tggacagaa gacacaagtt ccgaagctaa 19200
345 tttgggacaa cagtctatgc ccaacagacc caactacatt ggcttcagag ataactttat 19260
346 tggactcatg tactataaca gtactggtaa catgggggtg ctggctggtc aagcgtctca 19320
347 gttaaatgca gtggttgact tgcaggacag aaacacagaa ctttcttacc aactcttgct 19380
348 tgactctctg ggcgacagaa ccagatactt tagcatgtgg aatcaggctg tggacagtta 19440
349 tgatcctgat gtacgtgtta ttgaaaatca tgggtgtggaa gatgaacttc ccaactattg 19500
350 ttttccactg gacggcatag gtgttccaac aaccagttac aaatcaatag ttccaaatgg 19560
351 agaagataat aataattgga aagaacctga agtaaatgga acaagtgaga tcggacaggg 19620
352 taattttgtt gccatggaaa ttaaccttca agccaatcta tggcgaagtt tcctttattc 19680
353 caatgtggct ctgtatctcc cagactcgta caaatacacc ccgtccaatg tcaactcttc 19740
354 agaaaacaaa aacacctacg actacatgaa cgggcgggtg gtgccgccat ctctagtaga 19800
355 cacctatgtg aacattgggt ccaggtggtc tctggatgcc atggacaatg tcaacctatt 19860
356 caaccaccac cgtaacgctg gcttgcgtaa ccgatctatg cttctgggta acggacgtta 19920
357 tgtgcctttc cacatacaag tgcctcaaaa attcttcgct gttaaaacc tgctgcttct 19980
358 cccaggctcc tacacttatg agtggaaact taggaaggat gtgaacatgg ttctacagag 20040
359 ttccctcggg aacgacctgc gggtagatgg cgccagcatc agtttcacga gcatcaacct 20100
360 ctatgctact tttttcccca tggctcaca caccgcttcc acccttgaag ccatgctgcg 20160
361 gaatgacacc aatgatcagt cattcaacga ctacctatct gcagctaaca tgctctaccc 20220
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363 cagaggctgg tcatttacca gactgaaaac caaagaaact cctcttttg ggtctggatt 20340
364 tgacccttac tttgtctatt ctggttctat tccctacctg gatggtacct tctacctgaa 20400
365 ccacactttt agaagggtt ccacatggtt tgactcttca gtgagctggc ctggaaatga 20460
366 caggttacta tctcctaacg aatttgaaat aaagcgcact gtggatggcg aaggctacaa 20520
367 cgtagcccaa tgcaacatga ccaaagactg gttcttggta cagatgctcg ccaactacaa 20580
368 catcggttat cagggcttct acattccaga aggatacaaa gatcgcatgt attcattttt 20640
369 cagaaaacttc cagcccatga gcaggcagggt ggttgatgag gtcaattaca aagacttcaa 20700
370 ggccgtcgcc ataccctacc aacacaacaa ctctggcttt gtgggttaca tggctccgac 20760
371 catgcgcaa ggtcaacct atcccgctaa ctatccctat ccactcattg gaacaactgc 20820
372 cgtaaatagt gttacgcaga aaaagttctt gtgtgacaga accatgtggc gcataccgtt 20880
373 ctcgagcaac ttcattgtct tgggggacct tacagacttg ggacagaata tgctctatgc 20940
374 caactcagct catgctctgg acatgacct tgagggtgat cccatggatg agcccacct 21000
375 gctttatctt ctcttcgaag ttttcgacgt ggtcagagt catcagccac acccgggcat 21060
376 catcgaggca gtctacctgc gtacaccgtt ctcgccgggt aacgctacca cgtaagaagc 21120
377 ttcttgcttc ttgcaaatag cagctgcaac catggcctgc ggatcccaa acggctccag 21180
378 cgagcaagag ctacagagcca ttgtccaaga cctgggttgc ggacctatt ttttgggaac 21240
379 ctacgataag cgcttcccg ggttcatggc ccccgataag ctgcctgtg ccattgtaaa 21300
380 tacggccgga cgtgagacgg ggggagagca ctggttggct ttcggttga acccagttc 21360
381 taacacctgc tacctttttg atccttttg attctcgat gatcgtctca aacagattta 21420
382 ccagtttgaa tatgagggtc tctgcccgc cagcgtctct gctaccaagg accgctgtat 21480
383 tacgctggaa aaatctaccc agaccgtgca gggcccccgt tctgcccgt gcggactttt 21540
384 ctgctgcatg ttcttccacg cctttgtgca ctggcctgac cgtcccatgg acggaaaccc 21600
385 caccatgaaa ttgctaactg gagtgccaaa caacatgctt cattctccta aagtccagcc 21660
386 caccctgtgt gacaatcaaa aagcactcta ccattttctt aataccatt cgcttatttt 21720
387 tcgctctcat cgtacacaca tcgaaagggc cactgcgttc gaccgtatgg atgttcaata 21780
388 atgactcatg taacaacgt gttcaataaa catcacttta tttttttaca tgtatcaagg 21840
389 ctctggatta cttattttat tacaagtcca atgggttctg acgagaatca gaatgacccg 21900

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## RAW SEQUENCE LISTING

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:21

Input Set : A:\PH-1823PCT-US(sequence).txt

Output Set: N:\CRF4\12102004\J516504.raw

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390 caggcagtga tacgttgcgg aactgatact tgggttgcca cttgaattcg ggaatcacca 21960
391 acttgggaac cggatatatcg ggcaggatgt cactccacag ctttctggtc agctgcaaag 22020
392 ctccaagcag gtcaggagcc gaaatcttga aatcaccaatt aggaccagtg ctctgagcgc 22080
393 gagagtgcg gtacaccgga ttgcagcact gaaacaccat cagcgacgga tgtctcacgc 22140
394 ttgccagcac ggtgggatct gcaatcatgc ccacatccag atcttcagca ttggcaatgc 22200
395 tgaacggggt catcttgacg gtctgcctac ccatggcggg cacccaatta ggcttgtggg 22260
396 tgcaatcgca gtgcaggggg atcagtatca tcttggcctg atcctgtctg attcctggat 22320
397 acacggctct catgaaagca tcatattgct tgaaagcctg ctgggcttta ctaccctcgg 22380
398 tataaaacat cccgcaggac ctgctcgaaa actgggttagc tgcacagccg gcatcattca 22440
399 cacagcagcg ggcgtcattg ttggctatct gcaccacact tctgccccag cggttttggg 22500
400 tgattttggg tcgctcggga ttctccttta aggctcgttg tccgttctcg ctggccacat 22560
401 ccatctcgat aatctgctcc ttctgaatca taatattgcc atgcaggcac ttcagcttgc 22620
402 cctcataatc attgcagcca tgaggccaca acgcacagcc tgtacattcc caattatggg 22680
403 gggcgatctg agaaaaagaa tgtatcattc cctgcagaaa tcttcccatc atcgtgctca 22740
404 gtgtcttggt actagtgaag gtttaactgga tgctcggtg ctcttcggtt acgtactggg 22800
405 gacagatgcg cttgtattgt tcgtgttgct caggcattag tttaaaacag gttctaagtt 22860
406 cgttatccag cctgtacttc tccatcagca gacacatcac ttccatgcct ttctcccaag 22920
407 cagacaccag gggcaagcta atcggattct taacagtga ggcagcagct cctttagcca 22980
408 gagggctcatc tttagcgatc ttctcaatgc ttcttttggc atccttctca acgatgcgca 23040
409 cgggcgggta gctgaaaccc actgctacaa gttgcgcctc ttctctttct tcttcgctgt 23100
410 cttgactgat gtcttgcatg gggatatgtt tgggtcttct tggcttcttt ttgggggggta 23160
411 tcggaggagg aggactgtcg ctccgttccg gagacaggga ggattgtgac gtttcgctca 23220
412 ccattaccaaa ctgactgtcg gtagaagaac ctgacccac acggcgacag gtgtttttct 23280
413 tcgggggcag aggtggaggc gattgcgaag ggctgcggtc cgacctggaa ggcggatgac 23340
414 tggcagaacc ccttcgcgt tcgggggtgt gctccctgtg gcggtcgctt aactgatttc 23400
415 cttcgcggct ggccattgtg ttctcctagg cagagaaaca acagacatgg aaactcagcc 23460
416 attgctgtca acatcgccac gagtgccatc acatctcgct ctacgcgacg aggaaaagga 23520
417 gcagagctta agcattccac cgcccagctc tgccaccacc tctaccctag aagataagga 23580
418 ggtcgacgca tctcatgaca tgcagaataa aaaagcgaaa gagtctgaga cagacatcga 23640
419 gcaagaccgg ggctatgtga caccggtgga acacgaggaa gagttgaaac gctttctaga 23700
420 gagagaggat gaaaactgcc caaaacagcg agcagataac tataccaag atgctggaaa 23760
421 tagggatcag aacaccgact acctcatagg gcttgacggg gaagacgcgc tccttaaaca 23820
422 tctagcaaga cagtgcgtca tagtcaagga tgcattattg gacagaactg aagtgcccat 23880
423 cagtgtggaa gagctcagct gcgcctacga gcttaacctt tttcacctc gtactcccc 23940
424 caaacgtcag ccaaacggca cctgcgagcc aaatcctcgc ttaaactttt atccagcttt 24000
425 tgctgtgcca gaagtactgg ctacctatca catctttttt aaaaatcaaa aaattccagt 24060
426 ctctcgccgc gctaactgca cccgcgcca tgccctactc aatctgggac ctgggttcacg 24120
427 cttacctgat atagcttctt tgggaagagg tccaaagatc ttcgaggggtc tgggcaataa 24180
428 tgagactcgg gccgcaaatg ctctgcaaaa gggagaaaat ggcatggatg agcatcacag 24240
429 cgttctgggt gaattggaag gcgataatgc cagactcgca gtactcaagc gaagcgtcga 24300
430 ggtcacacac ttgcgatatc ccgtgtcaa cctgccccct aaagtcatga cggcggtcat 24360
431 ggaccagtta ctcatgaagc gcgcaagtcc cttttcagaa gacatgcatg acccagatgc 24420
432 ctgtgatgag ggtaaacagc tggtcagtga tgagcagcta acccgatggc tgggcaccga 24480
433 ctctccccgg gatttggaag agcgtcgcaa gcttatgatg gccgtgggtg tgggtaccgt 24540
434 agaactagag tgtctccgac gtttctttac cgattcagaa acctgcgca aactcgaaga 24600
435 gaatctgcac tacactttta gacacggctt tgtgcggcag gcatgcaaga tatctaactg 24660
436 ggaactcacc aacctgggtt cctacatggg tattctgcat gagaatcgcc taggacaaag 24720
437 cgtgctgcac agcaccctta agggggaagc ccgccgtgat tacatccgcg attgtgtcta 24780
438 tctctacctg tgccacacgt ggcaaacgg catgggtgta tggcagcaat gtttagaaga 24840

```

## RAW SEQUENCE LISTING

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:21

Input Set : A:\PH-1823PCT-US(sequence).txt

Output Set: N:\CRF4\12102004\J516504.raw

```

439 acagaacttg aaagagcttg acaagctctt acagaaatct ctttaagggttc tgtggacagg 24900
440 gttcgacgag cgcaccgtcg cttccgacct ggcagacctc atcttcccag agcgtctcag 24960
441 ggttactttg cgaaacggat tgccctgactt tatgagccag agcatgctta acaattttcg 25020
442 ctctttcatc ctggaacgct ccggtatcct gcccgccacc tgctgcgcac tgccctccga 25080
443 ctttgtgcct ctcacctacc gcgagtgcct cccgccccta tggagtcaact gctacctgtt 25140
444 ccgtctggcc aactatctct cctaccactc ggatgtgatc gaggatgtga gcggagacgg 25200
445 cttgctggag tgccactgcc gctgcaatct gtgcacgccc caccggtccc tagcttgcaa 25260
446 ccccgagttg atgagcgaaa ccagataat aggcaccttt gaattgcaag gcccagcag 25320
447 ccaaggcgat ggggtcttctc ctgggcaaag tttaaaactg accccgggac tgtggacctc 25380
448 cgcctacttg cgcaagtttg ctccggaaga ttaccacccc tatgaaatca agttctatga 25440
449 ggaccaatca cagcctccaa aggccgaact ttcggcttgc gtcacacccc agggggcaat 25500
450 tctggcccaa ttgcaagcca tccaaaaatc ccgccaagaa tttctactga aaaagggtaa 25560
451 gggggtctac cttgaccccc agaccggcga ggaactcaac acaagggttc ctcaggatgt 25620
452 cccaacgacg agaaaacaag aagttgaagg tgcagccgcc gccccagaa gatatggagg 25680
453 aagattggga cagtcaggca gaggaggcgg aggaggacag tctggaggac agtctggagg 25740
454 aagacagttt ggaggaggaa aacgaggagg cagaggagggt ggaagaagta accgccgaca 25800
455 aacagttatc ctcggtgcg gagacaagca acagcgctac catctccgct ccgagtcgag 25860
456 gaaccggcg gcgtcccagc agtagatggg acgagaccgg acgcttcccg aaccaacca 25920
457 gcgcttccaa gaccggtaag aaggatcgcc agggatacaa gtccctggcg gggcataaga 25980
458 atgccatcat ctccctgctt catgagtgcg ggggcaacat atccttcacg cggcgctact 26040
459 tgctattcca ccatggggtg aactttccgc gcaatgtttt gcattactac cgtcacctcc 26100
460 acagccccta ctatagccag caaatcccga cagtctcgac agataaagac agcggcgcg 26160
461 acctccaaca gaaaaccagc agcggcagtt agaaaataca caacaagtgc agcaacagga 26220
462 ggattaaaga ttacagccaa cgagccagcg caaacccgag agttaagaaa tcggatcttt 26280
463 ccaaccctgt atgccatctt ccagcagagt cggggtcaag agcaggaact gaaaataaaa 26340
464 aaccgatctc tgcgttcgct caccagaagt tgtttgtatc acaagagcga agatcaactt 26400
465 cagcgcactc tcgaggacgc cgaggctctc ttcaacaagt actgcgcgct gactcttaaa 26460
466 gagtaggcag cgaccgcgct tattcaaaaa aggcgggaat tacatcatcc tcgacatgag 26520
467 taaagaaatt cccacgcctt acatgtggag ttatcaaccc caaatgggat tggcagcagg 26580
468 cgctcccag gactactcca cccgcatgaa ttggctcagc gccgggcctt ctatgatttc 26640
469 tcgagttaat gatatacgcg cctaccgaaa ccaataactt ttggaacagt cagctcttac 26700
470 caccacgccc cgccaacacc ttaatcccag aaattggccc gccgccctag tgtaccagga 26760
471 aagtcgctc cccaccactg tattacttcc tcgagacgcc caggccgaag tccaaatgac 26820
472 taatgcagggt gcgcagttag ctggcggtc caccctatgt cgtcacaggc ctcggcataa 26880
473 tataaaacgc ctgatgatca gaggccgagg tatccagctc aacgacgagt cggtagctc 26940
474 tccgcttggt ctacgaccag acggaatctt tcagattgcc ggctgcggga gatcttccct 27000
475 caccctcgt caggctgttc tgactttgga aagttcgtct tcgcaacccc gctcgggcgg 27060
476 aatcgggacc gttcaatttg tagaggagtt tactccctct gtctacttca accccttctc 27120
477 cggatctcct gggcactacc cggacgagtt cataccgaac ttcgacgcga ttagcgagtc 27180
478 agtggacggc tacgattgat gtctggtgac gcggctgagc tatctcggt gcgacatcta 27240
479 gaccactgcc gccgctttcg ctgctttgcc cgggaactta ttgagttcat ctacttcgaa 27300
480 ctccccagg atcaccctca aggtccggcc caggagtgct ggattactat cgaaggcaaa 27360
481 atagactctc gcctgcaacg aattttctcc cagcggcccg tgctgatcga gcgagaccag 27420
482 ggaaacacca cggtttccat ctactgcatt tgtaatcacc ccgattgca tgaaagcctt 27480
483 tgctgtctta tgtgtactga gtttaataaa aactgaatta agactctcct acggactgcc 27540
484 gcttcttcaa cccggatttt acaaccagaa gaacaaaact tttcctgtcg tccaggactc 27600
485 tgtttaacttc acctttccta ctacaaaact agaagctcaa cgactacacc gcttttccag 27660
486 aagcattttc cctactaata ctactttcaa aaccggagggt gagctccacg gtctccctac 27720
487 agaaaaccct tgggtggaag cgggccttgt agtactagga attcttgagg gtgggcttgt 27780

```

## RAW SEQUENCE LISTING

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:21

Input Set : A:\PH-1823PCT-US(sequence).txt

Output Set: N:\CRF4\12102004\J516504.raw

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488 gattattctt tgctacctat acacaccttg cttcactttc ctagtggtgt tgtggtattg 27840
489 gtttaaaaaa tggggcccat actagtcttg cttgttttac tttcgctttt ggaaccgggt 27900
490 tctgccaatt acgatccatg tctagacttt gacccagaaa actgcacact tacttttgca 27960
491 cccgacacaa gccgcatctg tggagttctt attaagtgcg gatgggaatg cagggtccgtt 28020
492 gaaattacac acaataacaa aacctggaac aataccttat ccaccacatg ggagccagga 28080
493 gttcccgagt ggtacactgt ctctgtccga ggtcctgacg gttccatccg cattagtaac 28140
494 aacactttca ttttttctga aatgtgcgat ctggccatgt tcatgagcaa acagtattct 28200
495 ctatggcctc ctagcaagga caacatcgta acgttctcca ttgcttattg cttgtgcgct 28260
496 tgccttctta ctgctttact gtgcgtatgc atacacctgc ttgtaaccac tcgcatcaaa 28320
497 aacgccaata acaaagaaaa aatgccttaa cctctttctg tttacagaca tggcttctct 28380
498 tacatctctc atatttgtca gcattgtcac tgccgctcac ggacaaacag tcgtctctat 28440
499 cccactagga cataattaca ctctcatagg acccccaatc acttcagagg tcatctggac 28500
500 caaactggga agcgttgatt actttgatat aatctgtaac aaaacaaaac caataatagt 28560
501 aacttgcaac atacaaaatc ttacattgat taatgttagc aaagtttaca gcggttacta 28620
502 ttatggttat gacagataca gtagtcaata tagaaattac ttggttcgtg ttaccaggtt 28680
503 gaaaaccacg aaaatgccaa atatggcaaa gattcgatcc gatgacaatt ctctagaaac 28740
504 ttttacatct cccaccacac ccgacgaaaa aaacatccca gattcaatga ttgcaattgt 28800
505 tgcagcggtg gcagtgggtga tggcactaat aataatatgc atgcttttat atgcttgcgt 28860
506 ctacaaaaag tttcatccta aaaaacaaga tctcctacta aggcttaaca tttaatctct 28920
507 ttttatacag ccatggtttc cactaccaca ttccttatgc ttactagtct cgcaactctg 28980
508 acttctgctc gctcacacct cactgtaact ataggctcaa actgcacact aaaaggacct 29040
509 caaggtggtc atgtcttttg gtggagaata tatgacaatg gatggtttac aaaaccatgt 29100
510 gaccaacctg gtagattttt ctgcaacggc agagacctaa ccattatcaa cgtgacagca 29160
511 aatgacaaag gcttctatta tggaaaccgac tataaaagta gtttagatta taacattatt 29220
512 gtactgccat ctaccactcc agcaccgccg acaactactt tctctagcag cagtgtcgct 29280
513 aacaatacaa tttccaatcc aacctttgcc gcgcttttaa aacgcactgt gaataattct 29340
514 acaacttcac atacaacaat ttccacttca acaatcagca tcatcgctgc agtgacaatt 29400
515 ggaatatcta ttcttggttt taccataacc tactacgcct gctgctatag aaaagacaaa 29460
516 cataaagggt atccattact tagatttgat atttaatttg ttcttttttt ttatttacag 29520
517 tatggtgaac accaatcatg gtacctagaa atttcttctt caccatactc atctgtgctt 29580
518 ttaatgtttg cgctactttc acagcagtag ccacagcaac ccagactgt ataggagcat 29640
519 ttgcttctta tgcacttttt gcttttggtt cttgcatctg cgtatgtagc atagtctgcc 29700
520 tggttattaa ttttttccaa cttctagact ggatccttgt gcgaattgcc tacctgcgcc 29760
521 accatcccga ataccgcaac caaaatatcg cggcacttct tagactcatc taaaaccatg 29820
522 caggctatac taccaatatt tttgcttcta ttgcttccct acgctgtctc aaccccagct 29880
523 gcctatagta ctccaccaga acaccttaga aaatgcaaat tccaacaacc gtggtcattt 29940
524 cttgcttgct atcgagaaaa atcagaaatc cccccaatt taataatgat tgctggaata 30000
525 attaatataa tctgttgcac cataatttca tttttgatat accccctatt tgattttggc 30060
526 tggaatgctc ccaatgcaca tgatcatcca caagaccag aggaacacat tccccacaa 30120
527 aacatgcaac atccaatagc gctaatagat tacgaaagtg aaccacaacc cccactactc 30180
528 cctgctatta gttacttcaa cctaaccggc ggagatgact gaaacactca ccacctcaa 30240
529 ttccgccgag gatctgctcg atatggacgg ccgctctca gaacaacgac ttgcccact 30300
530 acgcatccgc cagcagcagg aacgcgtggc caaagagctc agagatgtca tccaaattca 30360
531 ccaatgcaaa aaaggcatat tctgtttggt aaaacaagcc aagatatcct acgagatcac 30420
532 cgctactgac catcgctct cttacgaact tggcccccac cgacaaaat ttacctgcat 30480
533 ggtgggaatc aaccccatag ttatcaccca acaaagtggg gatactaagg gttgcattca 30540
534 ctgctcctgc gattccatcg agtgcaacct caccctgctg aagaccctat gcggcctaag 30600
535 agacctgcta ccaatgaatt aaaaaaaaaa gattaataaa aaatcactta cttgaaatca 30660
536 gcaataaggt ctctgttgaa attttctccc agcagcacct cacttccctc ttcccaactc 30720

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## RAW SEQUENCE LISTING

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:21

Input Set : A:\PH-1823PCT-US(sequence).txt

Output Set: N:\CRF4\12102004\J516504.raw

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537 tgggtattcta aaccccgttc agcggcatatc tttctccata ctttaaaggg gatgtcaaat 30780
538 tttagtcctt ctctgtacc cacaatcttc atgtctttct tcccagatga ccaagagagt 30840
539 ccggctcagt gactccttca accctgtcta cccctatgaa gatgaaagca cctcccaaca 30900
540 cccctttata aacccagggg ttattttccc aaatggcttc acacaaagcc cagacggagt 30960
541 tcttacttta aaatgtttaa cccactaac aaccacaggc ggatctctac agctaaaagt 31020
542 gggaggggga cttacagtgg atgacactga tggtagctta caagaaaaca tacgtgctac 31080
543 agcaccattt actaaaaata atcactctgt agaactatcc attggaaatg gattagaaac 31140
544 tcaaaaacaat aaactatgtg ccaaattggg aaatgggtta aaatttaaca acggtgacat 31200
545 ttgtataaag gatagtatta acaccttatg gactggaata aaccctccac ctaactgtca 31260
546 aattgtggaa aacactaata caaatgatgg caaacttact ttagtattag taaaaaatgg 31320
547 agggcttggt aatggctacg tgtctctagt tgggtgatca gacactgtga accaaatggt 31380
548 cacacaaaag acagcaaaaca tccaattaag attatatttt gactcttctg gaaatctatt 31440
549 aactgaggaa tcagacttaa aaattccact taaaaataaa tcttctacag cgaccagtga 31500
550 aactgtagcc agcagcaaaag cctttatgcc aagtactaca gcttatccct tcaacaccac 31560
551 tactagggat agtgaaaact acattcatgg aatatgttac tacatgacta gttatgatag 31620
552 aagtctattt cccttgaaca tttctataat gctaaacagc cgtatgattt cttccaatgt 31680
553 tgctatgcc atacaatttg aatggaatct aaatgcaagt gaatctccag aaagcaacat 31740
554 agctacgtg accacatccc cctttttctt ttcttacatt acagaagacg acaactaaaa 31800
555 taaagttaa gtgtttttat ttaaaatcac aaaattcgag tagttatttt gcctccacct 31860
556 tcccatttga cagaatacac caatctctcc ccacgcacag ctttaaacat ttggatacca 31920
557 ttagagatag acattgtttt agattccaca ttccaaacag tttcagagcg agccaatctg 31980
558 gggtcagtga tagataaaaa tccatcgcca tagtctttta aagcgctttc acagtccaac 32040
559 tgctgcggat gcgactccgg agtttggatc acggtcatct ggaagaagaa cgatgggaat 32100
560 cataatccga aaacggtatc ggacgattgt gtctcatcaa acccacaagc agccgctgtc 32160
561 tgctgcgctc cgtgcgactg ctgtttatgg gatcagggtc cacagtttcc tgaagcatga 32220
562 ttttaatagc ccttaacatc aactttctgg tgcgatgcgc gcagcaacgc attctgattt 32280
563 cactcaaact tttgcagtag gtacaacaca ttattacaat attgtttaat aaaccataat 32340
564 taaaagcgct ccagccaaaa ctcatatctg atataatcgc ccctgcatga ccatcatacc 32400
565 aaagtttaat ataaattaaa tgacgttccc tcaaaaacac actaccaca tacatgatct 32460
566 cttttggcat gtgcatatta acaatctgtc tgtaccatgg acaacgttgg ttaatcatgc 32520
567 aaccaaatat aaccttccgg aaccacactg ccaacaccgc tccccagcc atgcattgaa 32580
568 gtgaaccctg ctgattacaa tgacaatgaa gaaccaat ctctcgaccg tgaatcactt 32640
569 gagaatgaaa aatatctata gtggcacaac atagacataa atgcatgcat cttctcataa 32700
570 tttttaactc ctcaggattt agaaacatat ccagggaat aggaagctct tgcagaacag 32760
571 taaagctggc agaacaagga agaccacgaa cacaacttac actatgcata gtcatagat 32820
572 cacaatctgg caacagcggg tggcttccag tcatagaagc tcgggtttca ttttctcac 32880
573 aacgtggtaa ctgggctctg gtgtaagggg gatgtctggc gcatgatgtc gagcgtgcgc 32940
574 gcaaccttgt cataatggag ttgcttctcg acattctcgt attttgata gcaaaacgcg 33000
575 gccctggcag aacacactct tcttcgcctt ctatcctgcc gcttagcgtg ttccgtgtga 33060
576 tagttcaagt acagccacac tcttaagttg gtcaaaagaa tgctggcttc agttgtaatc 33120
577 aaaactccat cgcactaat tgttctgagg aaatcatcca cggtagcata tgcaaatccc 33180
578 aaccaagcaa tgcaactgga ttgcgtttca agcaggagag gagaggggaag agacggaaga 33240
579 accatgttaa tttttattcc aaacgatctc gcagtacttc aaattgtaga tcgcgcagat 33300
580 ggcactcttc gccccactg tgttggtgaa aaagcacagc taaatcaaaa gaaatgcgat 33360
581 tttcaagggt ctcaacgggtg gcttccaaca aagcctccac gcgcacatcc aagaacaaaa 33420
582 gaatacaaaa agaaggagca ttttctaact cctcaatcat catattacat tcttgcacca 33480
583 tccccagata attttcagct ttccagcctt gaattattcg tgtcagttct tgtggtaaat 33540
584 ccaatccaca cattacaaac aggtcccggg gggcgccctc caccaccatt cttaaacaca 33600
585 ccctcataat gacaaaatat cttgctcctg tgtcacctgt agcgaattga gaatggcaac 33660

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## RAW SEQUENCE LISTING

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:21

Input Set : A:\PH-1823PCT-US(sequence).txt

Output Set: N:\CRF4\12102004\J516504.raw

```
586 atcaattgac atgcccttgg ctctaagttc ttctttaagt tctagttgta aaaactctct 33720
587 catattatca ccaaactgct tagccagaag cccccggga acaagagcag gggacgctac 33780
588 agtgcagtac aagcgcagac ctccccaatt ggctccagca aaaacaagat tggataaagc 33840
589 atattgggaa ccaccagtaa tatcatcgaa gttgctggaa atataatcag gcagagtttc 33900
590 ttgtagaaat tgaataaaag aaaaatttgc caaaaaaaca ttcaaacct ctgggatgca 33960
591 aatgcaatag gttaccgcgc tgcgtccaa cattgttagt tttgaattag tctgcaaaaa 34020
592 taaaaaaaaa acaagcgtca tatcatagta gcctgacgaa caggtggata aatcagtctt 34080
593 tccatcacia gacaagccac agggctctca gctcgacct cgtaaaacct gtcacgtga 34140
594 ttaaacaaca gcaccgaaag ttctcgcgg tgaccagcat gaataagtct tgatgaagca 34200
595 tacaatccag acatgttagc atcagttaag gagaaaaaac agccaacata gcctttgggt 34260
596 ataattatgc ttaatcgtaa gtatagcaaa gccaccctc gcggatacaa agtaaaaggc 34320
597 acaggagaat aaaaaatata attatttctc tgctgctggt taggcaacgt cgcccccggt 34380
598 cctctaaat acacatacaa agcctcatca gccatggctt accagagaaa gtacagcggg 34440
599 cacacaaacc acaagctcta aagtcactct ccaacctstc cacaatatat atacacaagc 34500
600 cctaaactga cgtaatggga ctaaagtgt aaaaatcccg ccaaaccaca cacacacccc 34560
601 gaaactgcgt caccagggaa aagtacagtt tcaattccgc aatcccaaca agcgtcactt 34620
602 cctctttctc acggtacgtc acatccatt aacttacaac gtcattttcc cagggccgcg 34680
603 cggcccttt taaccgttaa cccacagcc aatcaccaca cggcccacac tttttaaata 34740
604 cctctaatat acatattggc accattccat ctataaggta tattattgat gatg 34794
```

E--&gt; 607

1/21

*Deleted*

## VERIFICATION SUMMARY

DATE: 12/10/2004

PATENT APPLICATION: US/10/516,504

TIME: 14:17:22

Input Set : A:\PH-1823PCT-US(sequence).txt

Output Set: N:\CRF4\12102004\J516504.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date ✓

L:607 M:254 E: No. of Bases conflict, LENGTH:Input:21 Counted:34795 SEQ:1 ✓

L:607 M:320 E: (1) Wrong Nucleic Acid Designator, NUMBER OF INVALID KEYS:2 ✓

L:607 M:252 E: No. of Seq. differs, &lt;211&gt; LENGTH:Input:34794 Found:34795 SEQ:1 ✓